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JAI SINGH'S OBSERVATORIES
THE PACIFIC FLYWAY
EDWARD F. RICKETTS

THE VIEW FROM THE GREAT TIDEPOOL

Edward F. Ricketts, friend and mentor of amateur marine biologist John Steinbeck, found a kind of immortality as "Doc" in *Cannery Row*. Meanwhile, his pioneering marine studies along the Pacific Coast have inspired a generation of scientists.

JOHN E. McCOSKER

JOHN STEINBECK, a frustrated zoologist but author of some renown, described his favorite character, "Doc" of *Cannery Row*, as *half Christ and half satyr and his face tells the truth. It is said that he has helped many a girl out of one trouble and into another. Doc has the hands of a brain surgeon and a cool warm mind. Doc tips his hat to dogs as he drives by and the dogs look up and smile at him. He can kill anything for need but he could not even hurt a feeling for pleasure.*

It was precisely that colorful character who loved the "good, kind sane animals of the tidepools" — and not Jacques Cousteau — that inspired me and many others of my generation to pursue a career in marine biology.

The Doc that Steinbeck created was of course a caricature of his friend Edward Flanders Robb Ricketts, a twentieth-century pioneer in marine studies along the Pacific coast and a prolific technical and philosophical writer. Steinbeck's preface to *The Log from the Sea of Cortez*, entitled "About Ed Ricketts," contains a warm-hearted portrait of his coauthor and intellectual companion of nearly two decades. For most biologists, those often-cited passages are the introduction to the "real" Doc. Yet in recent years, the notoriety, fame, and mystique that has surrounded the fictional and actual character have sullied the reality of an important biologist and the significance of his lasting contributions.

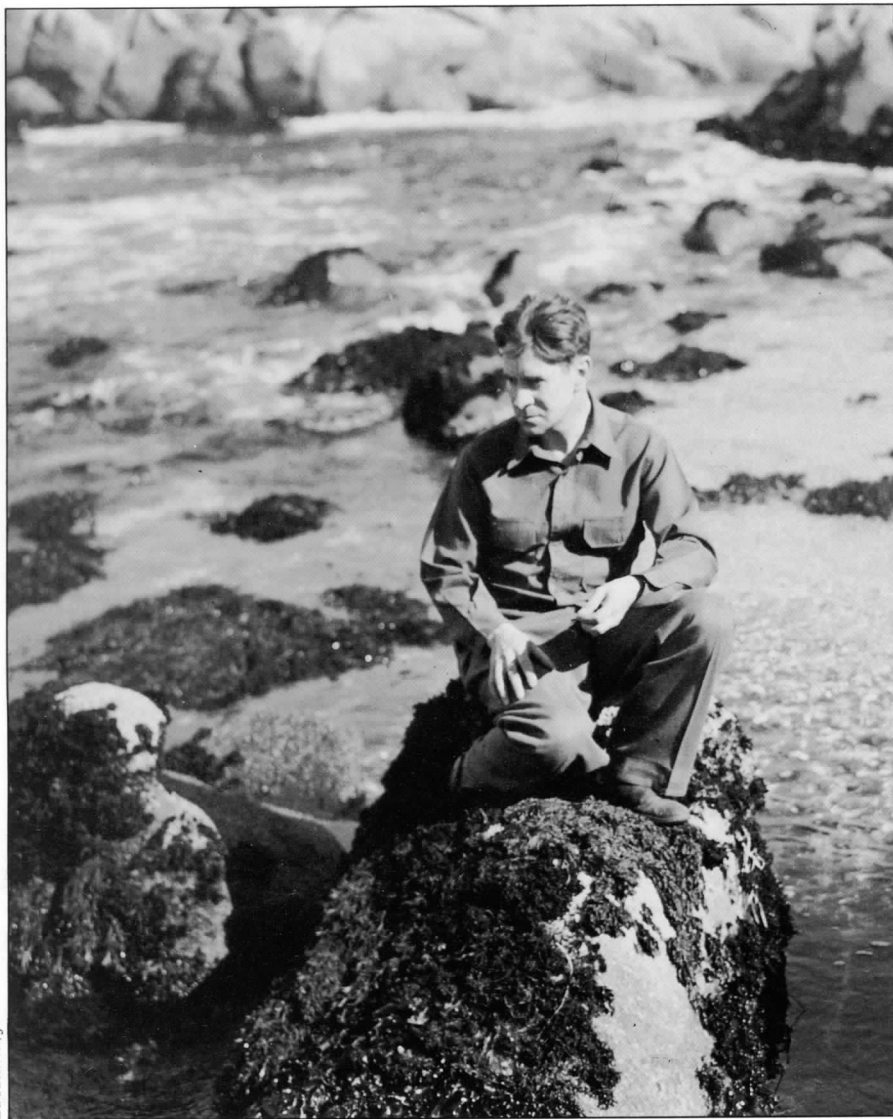
For example, the annual celebration of Doc's birthday on October 31st in Monterey, California, disregards the fact that Ricketts was born on the 14th of May. In MGM's *Cannery Row*, an \$11.3 million extravaganza, Doc was portrayed by Nick Nolte and gratuitously awarded a Ph.D. in marine biology and a stint as a professional baseball player — two facets that are remarkably un-Rickettsian in their utter disregard for truth, the ultimate tenet of his existence. Were Ricketts alive, he would be pleased by the Moss Landing Marine Laboratory's precision in christening the research vessel *Ed Ricketts* with an unadulterated half-gallon of his favorite brew — Burgermeister — and not the infamous beer milkshake of Steinbeck tradition.

Who then was Ed Ricketts? And what were his contributions? I recently set out to remove the miasma and mystique that resulted from Steinbeck's fictional por-

trayal. Aided by the publication of *The Outer Shores* and analysis of many of Ricketts' unpublished tracts by his associate, Academy Fellow Joel Hedgpeth, as well as visits to Monterey, the Gulf of California, and an examination of his specimens deposited in the Invertebrate Zoology Collection of the California Academy of Sciences, I feel that it is not too late to understand the man who was perhaps the most colorful and complicated character in the development of marine biology in California.

Ed Ricketts was a collection of contrasts. Apparently, he loved: truth; alcohol, especially beer, especially Burgie, and he was deeply suspicious of anyone who claimed to be a teetotaler; good food; music, particularly the masses of William Byrd and Palestrina, Bach's "The Art of Fugue," Monteverdi, and, later in life, Mozart; books, including scientific literature in a variety of languages, as well as Goethe's *Faust* and translations of Li Po and Tu Fu; dogs, although he never owned one; tidepool creatures, particularly worms (in fact Steinbeck reports that Ricketts once endeared a girlfriend with the name "Wormy"); women with thick lips; and the physical love of women, holding in low regard anyone who claimed they did not.

Conversely, he held many things in great disfavor, including: non-truths; old age; hot soup; women with thin lips; cruelty to humans or animals; and getting his head wet. Ricketts nearly always sported a fedora while at work in the tidepools. He clearly was a man of contrasts, described by Steinbeck as *gentle but capable of ferocity, small and slight but strong as an ox, loyal and yet untrustworthy, generous but gave little and received much. His thinking was as paradoxical as his life. He thought in mystical terms and hated and distrusted mysticism. He was an individualist who studied colonial animals with satisfaction.*



Ed Ricketts, Jr.

Edward Flanders Robb Ricketts on an outgoing tide at Pacific Grove. These rocks and the algal species that adorn them are visible from Stanford University's Hopkins Marine Station.

Born in Chicago in 1897, Ricketts was an unlikely candidate for a career in ocean sciences. His first opportunity to learn from nature came at age ten, when his family moved to rural South Dakota. His probing in natural history included an amorous interest in the local rector's daughter, Victoria, and actively increased with his hormone titer. A two-year stint in the Army ended with World War I and was followed in 1919 by studies in zoology at the University of Chicago under the critical guidance of ecologist Warder Clyde Allee. Ricketts' first year at the university was interrupted by his extracurricular association with an older, married woman, a complicated involvement from which he escaped by walking from Indi-

anapolis to Savannah, Georgia, and recording his experience in his article "Vagabonding In Dixie," published in *Travel* magazine in June, 1925.

His return to the university in 1922 and further studies under Allee were significant in the development of Ricketts' view of the subtle interdependence of organisms and physical phenomena. At Chicago, he roomed at the "Boar's Nest" with a rowdy crew of Alleeophiles whom their professor called his "Ishmaelites," a group "who tended sometimes to be disturbing but were always stimulating."

Allee's influence was evident throughout the development of Ricketts' philosophical and biological thinking. Allee's theory of the "mutual interdependence or

automatic cooperation among organisms" suggested a synergy that increased the survival potential of dissimilar organisms through their consociation. Allee's classic volume *Animal Aggregations* is considered quite primitive by contemporary sociobiologists, yet its basis was sound and prepared Ricketts to compose his own holistic "toto-picture" and "unified field hypothesis" of animal communities. Ricketts later wrote that "Allee found that aggregations have a distinct survival value for their members, bringing about a degree of resistance to untoward conditions that is not attainable by isolated individuals." And Ricketts extended that thesis to the human condition.

In 1922 he married Anna Macker. A year later he left the university for Monterey Bay, California, to begin a biological specimen supply company with his friend Galigher. History and Joel Hedgpeth suggest that it is fortunate Ricketts did not complete his studies subsequently to become an obscure instructor somewhere in middle America. He was a professional naturalist, not a professional biologist, and his ownership of the Pacific Biological Laboratory required him to be in the water observing and collecting the creatures he loved. The Monterey shore fauna was incredibly rich and poorly known at that time and Ricketts became concerned that the demand for school "demonstration and dissection" specimens might wreak havoc in the tidepools. His caveats about overcollecting and community imbalance through species removal were insightful, if not revolutionary, but ignored by fishermen during the heyday prior to the collapse of the Monterey sardine fishery.

William Emerson Ritter, a major marine scientist at the Scripps Institution, met Ricketts in the course of field work in Monterey. Like Allee, Ritter was a maverick because of his holistic view of



Ed Ricketts, Jr.

At left, a photo from Ricketts' scrapbook, dated 1919, is titled "Buddy and I." The self-portrait below was taken on Ricketts' walk from Indiana to Georgia in 1921. Joel Hedgpeth relates that while "Vagabonding in Dixie," Ricketts emulated John Muir's habit of sleeping in cemeteries when crossing "superstitious regions."

never eaten by other animals which should have found them irresistible. He reached under water and picked up a lovely orange-colored nudibranch and put it into his mouth. And instantly he made a horrible face and spat and retched, but he had found out why fishes let these living tidbits completely alone.

Although Ricketts had a keen eye for the differences between species, the state of the art of taxonomy in the 1920s was very poor. The best guide available was a wholly inadequate systematic catalogue, Johnson and Snook's *Seashore Animals of the Pacific Coast*, which encompassed a small fraction of the fauna. Encouraged by his associates, Ricketts began collecting data for a beginner's guide, which soon grew to a volume which described some 500 species in the bays, estuaries, and shallow coastal waters from Sitka, Alaska, to Ensenada, Mexico.

Entitled *Between Pacific Tides*, this volume was the first to present species according to habitat, rather than by a sequence of phylogenetic classification, and to discuss such factors as wave and tidal effects, habitat types, and who ate whom. The first edition appeared in 1939, after its preparation was delayed in 1936 by a late evening power surge that started a devastating fire on Cannery Row. With the lab in flames, Ricketts rushed to the basement to save his typewriter and car. Steinbeck remarked that Ricketts "had no pants but he had transportation and printing. He always admired his choice." *Between Pacific Tides* was coauthored by Jack Calvin, a local photographer and author of children's books who turned Ricketts' typically turgid prose into the remarkably readable wonder that is now in its fifth revised edition. Although Calvin is listed as a coauthor, he and others agree that it was Ricketts' work and his alone.

Within the sciences, *Between Pacific Tides* is extraordinary in its blend of facts with wry humor. The description of the

"pleasant and absurd" hermit crabs, the "clowns of the tidepools," is accurate: Among themselves, when they are not busy scavenging or love-making, the gregarious 'hermits' fight with tireless enthusiasm tempered with caution. Despite the seeming viciousness of their battles, none, apparently, are [sic] ever injured. When the vanquished has been surprised or frightened into withdrawing his soft body from his shell, he is allowed to dart back into it, or at least to snap his hindquarters into the shell discarded by his conqueror.

Ricketts noted that the sunflower star, *Pycnopodia helianthoides*, "indicates its attitude toward the human race by shedding an arm or two," and that although its



Ricketts at work with a giant squid (Dosidicus gigas). In the mid-1930s, when this photo was taken, such squid feasted on the then-abundant sardines of Monterey Bay.

favorite food is the sea urchin *Strongylocentrotus*, the starfish is but “urchin enemy number two—first place now goes to the developmental biologists.”

Enter John Steinbeck, the interested student of marine biology with a flair for recording it. Ricketts was a source of inspiration to the novelist, which inspiration presumably included a bit of envy of the biologist on Steinbeck’s part. Their intellectual communion was immediate. Through the magic of Steinbeck’s pen, Ricketts became the first and only marine biologist to become heroic in American fiction. And the confusion which occurred between the believable Doc and the real Ricketts was the inevitable result of Steinbeck’s literary license.

Joel Hedgpeth’s publication of Ricketts’ unpublished manuscripts has helped to unravel the Doc/Ed ambiguity. As Hedgpeth wrote in his foreword to *Outer Shores*, the selections in that volume reveal facts of Ed’s character that Steinbeck was unable to communicate. Ricketts was by instinct and perception, ahead of his time as a biologist who attempted to combine all his experience, observation, and reading into an integrated whole, a “total picture.” Today perceptive ecologists can understand his urge to bring Bach and Zen together in the Great Tide-pool.

The principal characters in Steinbeck’s works clearly represent various aspects of Ricketts’ personality. Beyond “Doc” in *Cannery Row* and *Sweet Thursday*, one can easily recognize Ricketts in Dr. Winter in *The Moon is Down*, Doc Burton of *In Dubious Battle*, Friend Ed in *Burning Bright*, Pablo in *Viva Zapata!*, and Preacher Casey in *The Grapes of Wrath*. Steinbeck scholar Richard Astro has identified Ricketts’ characteristics which were the grist for Steinbeck’s mill. In *John Steinbeck and Edward F. Ricketts: The Shaping of a Novelist*, Astro writes that Ricketts’ passion for holistic and ecological thinking, his

associational beliefs about the behavior of men and animals in groups, his doctrine of breaking through, and his disdain for the self-oriented acquisition of material wealth provided Steinbeck with many of his central thematic tenets.

One can imagine Ricketts muttering Preacher Casey’s words, “There ain’t no sin and there ain’t no virtue. There’s just stuff people do.” Steinbeck conceived of *The Moon is Down* after one of their many well-lubricated discussions of “speculative metaphysics.” The final scene evokes the trial and death of Socrates, as well as images of Ricketts and Steinbeck dissecting the Socratic method over beer and “dago red” in the laboratory library.

Later, Steinbeck’s treatment of Doc in *Cannery Row* was fanciful and looser than previous portrayals. In defense he wrote in *Sweet Thursday* that “there are people who will say that this whole account is a lie, but a thing isn’t a lie even if it didn’t necessarily happen.” Such reasoning must have been repugnant to Ricketts, a man whose total concern was with truth.

Steinbeck met Ricketts when the author moved to Pacific Grove in 1930. Their paths inevitably crossed through Steinbeck’s interest in biology and visits to Hopkins Lab. Hedgpeth tells us that Steinbeck’s colorful account of their first meeting in a dentist’s waiting room, where Ricketts staggered around muttering and waving his bloody tooth, was an example of Steinbeckian embellishment. In fact, both men had bad teeth and avoided dentists. Although a less dramatic event occurred at the dentist’s, it was certainly not their first encounter.

Their friend Hedgpeth relates that Steinbeck’s success with *Cannery Row* changed Ricketts’ life. “The collector of considerable experience had become himself a literary specimen to be sought out and collected socially,” Hedgpeth writes in *Outer Shores*. Other avenues of benefit and inconvenience opened to the scientist.



Ralph Buchsbaum, courtesy of the photographer

Ricketts’ fondness for women was fed by Steinbeck’s characterization of him as “concupiscent as a rabbit.” (Actually, my conversations with Sparky Enea, who was in Mexico with the two men in 1940, indicated that Steinbeck might even have understated this.)

After Ricketts’ literary exposure and the end of his first marriage, Hedgpeth told me, Ricketts “did not put off his big-brotherly concern for the romantic teenager who wanted to be deflowered; he took her to bed. Steinbeck’s heavy-handed interest in Ed’s sex life may have encouraged more overt expressions of Ed’s goaty tendencies.” My own casual search for the legendary enormous card file of Ricketts’ romantic encounters, said to have been interspersed among his notes and observations of lower vertebrates and invertebrates, was unsuccessful. I suspect that rumors of it too were apocryphal, but not far from reality.

In its heyday, Ricketts' Pacific Biological Laboratory was sandwiched between sardine canneries (below). At right, the Lab's cramped living quarters and library. Below right, Toni Jackson, her daughter Kay, and Ed Ricketts, Jr., outside the Lab, about 1946.

It is my own thesis that the development of nearly every aspiring marine biologist has been influenced by the romantic notion of a collecting trip to a faraway sea, a grand example of which was the Steinbeck/Ricketts adventure that resulted in the publication of their coauthored *Sea of Cortez: A Leisurely Journal of Travel and Research*. In 1940 they chartered the purse seiner *Western Flyer* and left Monterey for a circumnavigation of the Baja California peninsula and the Sea of Cortez. In the company of Carol Steinbeck, Steinbeck's first wife and Ricketts' secretary at the laboratory, and sardine fishermen Tony Berry, Sparky Enea, and Tex Travis, they collected and published upon the landscape and ecology of Baja California. They collected more than 600 species, the majority previously known only from inadequate technical descriptions, and



Ed Ricketts, Jr.

many more that were new to science. Those collections remain in the Invertebrate Zoology Collection of the California Academy of Sciences in San Francisco and are still in use by systematists.

The volume is wonderfully readable, an intended fusion of art and science which states in its Introduction, "We

wanted to see everything our eyes could accommodate, to think what we could, and, out of our seeing and thinking, to build some kind of structure in modeled limitation of the observed reality."

For example, they described the Sierra (*Scomberomorus maculatus*) as "'D.XVII-15-X; A.II-15-X,' but also we could see the fish alive and swimming, feel it plunge against the line, drag it threshing over the rail, and even finally eat it." They rightly concluded that "perhaps out of the two approaches, we thought, there might emerge a picture more complete and even more accurate than either alone could produce." The strength of their work lay in



Ed Ricketts, Jr.



Fred Strong



Ricketts, in an unusually pensive pose, photographed by his brother-in-law Fred Strong

notes from a 1946 trip to Vancouver Island,

If only everything could be cleancut, the distinctions between the related species definite and unvarying, how lovely! That they aren't may easily drive you to distraction. Or to understanding the fundamental unity of all animal life. . . . A few thousand or a few hundred thousand years from now, everything will be cleared up nicely. Out of the many possibilities, a few well-stabilized species will have emerged, well-adapted to their environment and fairly non-varying.

Such hopeful thinking—that given enough time, evolution will solve all the biologists' dilemmas—is entirely unacceptable today.

Overlooked by most biologists are Ricketts' theses on the effect of wave

shock and tides upon animals and plants. Both factors were discussed in the introduction and text of *Between Pacific Tides* and would have been further developed in the volume he was planning at the time of his death, about the outer shores of British Columbia.

It is necessary to recall the difficulties one had to face in performing such studies in the 1930s, when there were neither computers nor critical wave, shock, and tide measuring devices, and when oceanographers spent little time in discussion with biologists. Ricketts analyzed the distribution of plants and animals along the various shoreline gradients in relation to wave exposure and tidal change, and completed a forty-five page manuscript that became a benchmark to many stu-

dents at the Hopkins Marine Station. The manuscript, tabulations, and illustrations were destroyed in the Cannery Row fire of 1936 and Ricketts never rewrote it. From his discussions with students and professors, his unpublished manuscripts, and what appeared in *Between Pacific Tides*, have come what may be the most significant, although not his most memorable, contributions to marine biology.

In the months before his death, Ricketts became publicly concerned about the Monterey Bay Sardine Fishery that had developed prior to World War II. The improvements in fishing gear and the increasing demand for sardines during the war brought significant wealth to Cannery Row. Ricketts adopted an extremely unpopular view of the fishery when he discovered ominous signs of the collapsing sardine population and foretold the eventual disappearance of the resource. In the newspapers, Ricketts advocated a strict landing reduction and suggested a conservation program with size and catch limits. Instead, because of the heavy capitalization of the local boats and canneries, the fishery increased, and as he predicted the catch dropped from 800,000 tons in 1937 to 100,000 tons a decade later. Ricketts did not live to see the final demise of the sardine fishery and the conversion of Cannery Row to a line of boutiques, restaurants, and tourist traps. Just as well.

In 1947, he was separated from Toni Jackson, the lovely, intelligent woman who had been his intellectual foil and companion since 1941. He was emotionally distraught. But not for long. A month later, on a trip to the desert, he married Alice Campbell. His notebook record of that trip began "The highlights, aside from getting married, were . . ."

Five months later, Ricketts was struck by a train while he drove across the Southern Pacific tracks around the corner from his lab. It was late in the afternoon, and

Important scientists often serve as namesakes for species they discovered or studied. The nudibranch at right, *Cuthona rickettsi*, and several other invertebrates were named after Ed Ricketts. Below, the view from the Great Tidepool.

some suggest that he was drunk. Others suggest that it was suicide, that he never recovered from Toni's departure.

In his holographic will of 1940, Ricketts bequeathed to John Steinbeck his personal notebooks, papers and Mss in progress. These contain a great deal of . . . conceptual material for a system of metaphysics. Also lots of good dope and probably some plain crap on human relations, etc. This could be sorted out by one competent and sympathetic mind, such as John's, into quite significant work, altho such work would take deep discipline in the old-fashioned or (living) sense of "prayerful watching and waiting."

Some say that after Ricketts' death, Steinbeck declined as a writer. Ricketts had hoped to work with his friend to complete a sequel comparable to the *Log*, based on his work in the Queen Charlotte Islands of British Columbia. He had sent his notes to Steinbeck with the comment "well Jnny boy, this is it. . . . The trips of 1945 and 46 are over, it's yr book now and God bless you." Steinbeck never attempted to complete the book. "The light," he sadly wrote in "has gone out of it for me."

During the Queen Charlotte trips, Ricketts had made the acquaintance of Father J. P. Mulvihill, who later became Bishop of White Horse. Mulvihill wrote Joel Hedgpeth and related that the biologist had told him of his idea of heaven. It was to be out on the reef "at low tide when the sun was rising and the marine life was just teeming."

Looking back at the life and lore surrounding the real and imagined "Doc" Ed Ricketts, I wonder if another figure will arise who could influence an entire generation of marine biologists? One can certainly suggest that Jacques Cousteau, with the magic of the electronics media and the gurgling mystery of SCUBA divers above coral reefs to aid him, has sent many hopefuls to colleges and diving



David W. Behrens

schools in search of a romantic career in oceanography. Yet I suspect that the transitory nature of television is not enough to capture the imagination in the way that Steinbeck's prose related Ricketts' view of life. They wrote in the *Log* that *It is a strange thing that most of the feeling we call religious, most of the mystical outcrying which is one of the most prized and used and desired reactions of our species, is really the understanding and the attempt to say that man is related to the whole thing, related inextricably to all reality, known and unknowable. It is advisable to look from the tidepool to the stars and then back to the tidepool again.* 🐸

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Ed Ricketts, Jr.